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Companion Animal Statistics in the USA

Andrew N. Rowan
The Humane Society of the United States

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Introduction

Early in 2008, a number of organizations and individuals interested in accurate statistics on pet population numbers and trends gathered in a hotel in Houston, TX to review the available data on estimated pet populations and shelter demographics. While the data and analysis below was produced and subsequently added to by just one of those individuals, the following document takes into account the input from those who attended. For example, it was generally accepted that the AVMA pet population estimates from their quinquennial surveys are likely to be more reliable than the biennial surveys used to produce the APPMA demographic reports. [In the following report, all references to the AVMA surveys are to the quinquennial surveys by the American Veterinary Medical Association starting in 1981. APPA data refers to the surveys by the American Pet Products Association produced every two years since 1988.]

A. Number of Dogs and Cats in the USA

Survey Methods

There are several ways in which estimates of the total number of dogs and cats in the USA have been developed. These include surveys using Household Panel samples (APPA has used the Ipsos panel but has shifted to internet surveying more recently while the AVMA has used panels drawn from the TNS Custom Research database). Surveys conducted by Random Digit Dial (RDD) technology (e.g. Mediamark Research conducted annual RDD pet population surveys from 1985-1996) were common in the twentieth century and, more recently, surveys have been conducted via the internet. All have problems and none are 100% accurate but they do provide an estimate of the number of dogs and cats in the country (or, more rarely, a state or a community).

Survey Results

The results from these surveys differ, sometimes by substantial amounts. In the twentieth century, the results from household panel surveys differed from RDD methods by approximately 20% (Patronek and Rowan, 1995). The APPA and AVMA survey results have been diverging steadily since the 1980s and the APPA estimates are now about 20-25% higher than the AVMA estimates. By contrast, an American Census Bureau survey of 25 metropolitan statistical areas reported much lower pet ownership (42.3% of households owning pets) than either the AVMA (56%) or the APPA (68%). These are substantial differences that lead to very different estimates of the total number of dogs and cats in the USA. The different surveys have different sources of bias but the data currently available is not sufficient to decide which method produces the most accurate estimate. It is recommended that estimates of national dog and cat population numbers be developed from trend lines generated from the AVMA surveys but people using these estimates should recognize that these estimates may not be accurate. In addition, there are significant variations in state-by-state numbers of dogs and cats so one should NOT apply the national estimates to generate local dog and cat population numbers unless no other method is available. .

B. Population trends of owned dogs and cats in USA

There are three good sets of "trend" data for pet "ownership" – those produced biannually by the APPA from 1988 to the present, those produced every five years by the AVMA (from 1986 to the present), and those produced by Mediamark Research from 1985-1996. (The reason these trend data are reliable is because the methods used were broadly the same each time the survey was done. Therefore, even though the APPA data might overestimate dog and cat populations, the method would likely have the same bias towards overestimation each time.)

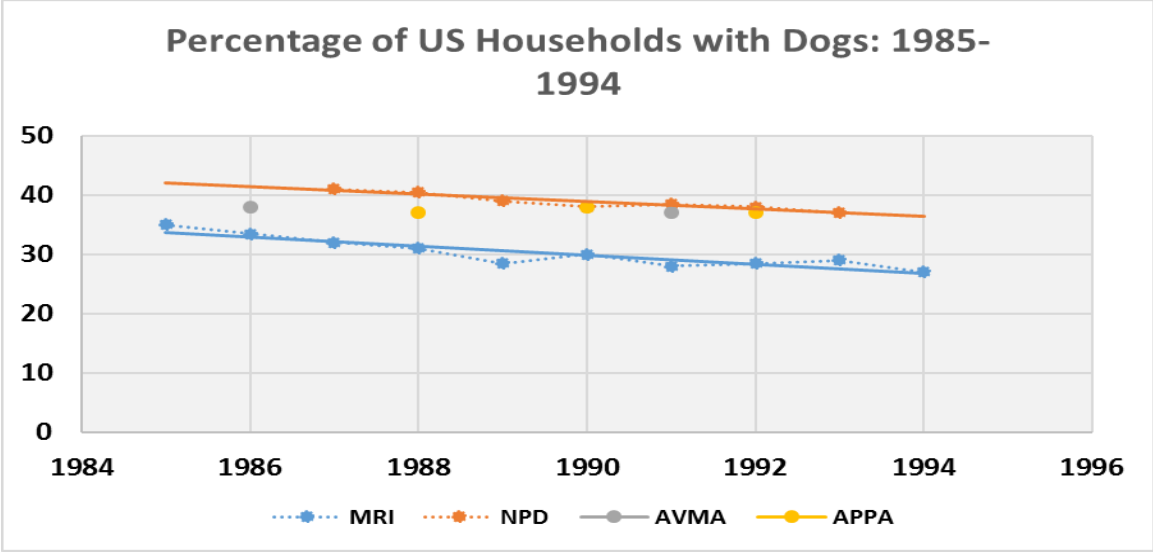
APPA Data

	1988	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2014	2016
% HH with pets	56.0	57.0	58.0	56.0	59.0	61.0	62.0	62.0	63.0	63.0	62.0	62.4	68.1	64.7	67.9
% HH with dogs	37	38	38	36	37	39	39	39	39	39	45.6	46.3	46.7	44.0	48.0
% HH with cats	30	33	32	30	32	32	34	34	34	34	33.0	33.0	37.3	34.8	38.0
Total occ. HHs (mill)	91	93	96	97	99	100	102	104	107	110	115.7	118.2	121.4	122.5	124.6
Ave Dogs/HH	1.70	1.50	1.50	1.60	1.50	1.60	1.70	1.60	1.70	1.67	1.70	1,69	1.47	1.43	1.49
Ave Cats HH	1.90	2.00	2.10	2.10	2.10	2.40	2.10	2.20	2.40	2.30	2.45	2.22	2.11	2.00	2.00
Total Dogs(mill)	57.8	52.7	53.1	54.2	54.6	62.6	68.0	65.0	73.9	74.8	77.5	78.2	83.3	77.8	89.7
Total Cats (mill)	52.6	60.8	62.6	59.4	66.1	77.0	72.9	77.7	90.5	88.3	93.6	86.6	95.6	85.8	94.2

AVMA Data

	1986	1991	1996	2001	2006	2011
% HH with pets anytime		57.9	58.9	58.3	59.5	62.4
% HH with dogs	38.2	36.5	31.6	36.1	37.2	36.5
% HH with cats	30.5	30.9	27.3	31.6	32.4	30.4
Total occupied HHs(million)	88	93	99	102	110	119
Ave Dogs/HH	1.5	1.5	1.7	1.6	1.7	1.6
Ave Cats HH	2.0	2.0	2.2	2.1	2.2	2.1
Total Dogs (million)	52.4	52.5	52.9	61.5	72.1	69.9
Total Cats (million)	54.6	57.0	59.1	70.8	81.7	74.1

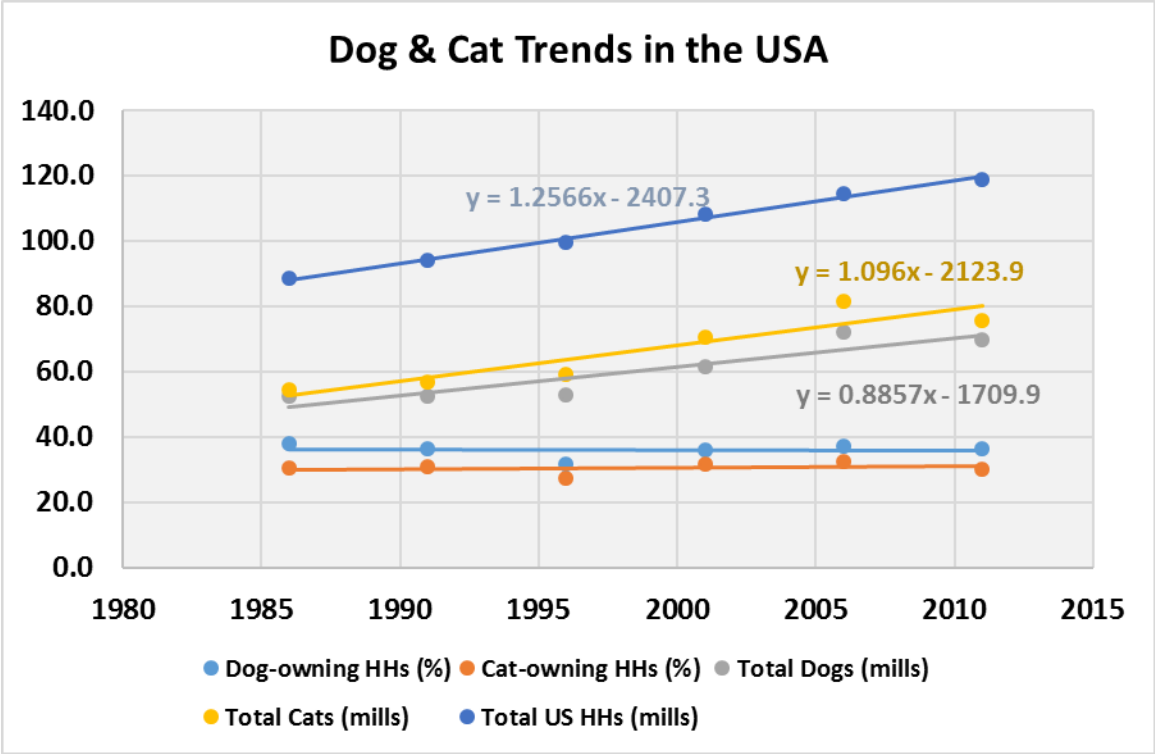
Overall, these surveys find that the total number of dogs and cats in the country has increased steadily since 1980. This has occurred despite the fact that the percentage of households with dogs and cats has not changed much since the 1990s (however, see the chart below that tracks survey data for % of households that have dogs from 1985 through 1996 when dog ownership rates declined).



Both the Household Panel methods (NPD, AVMA & APPA) and the Random Digit Dial approach (MRI) indicated that the % of households with dogs declined from 1985 through 1995. Notice how the RDD method produces an estimate that is consistently around 20% lower than the Household Panel approach. Since the 1990s, the percentage of households with dogs has stabilized at 38% while the percentage of households with cats has increased slightly from around 30% to 32-34%.

Dog and cat populations have generally grown because the total number of occupied households has increased by almost 20% from around 88 million in the 1986 to 119 million in 2011.

AVMA Data presented graphically



One can produce an estimate of the total pet dog and cat populations in the United States for any year by using the trend equations from the above graph. Therefore, the total number of dogs and cats in the USA in 2017 calculated from the above trend line would be as follows:

Cats = (1.096 x 2017) – 2123.9 = 2210.632 – 2123.9 = 86.73 million

Dogs = (0.8857 x 2017) – 1709.9 = 1786.4569 – 1709.9 = 76.56 million

C. Calculating the Number of "Owned" Dogs or Cats in your Community.

Typically, the surveys determine the percentage of households with dogs and cats and the average number of dogs and cats in each household. If one then knows the number of occupied households in the country (or community) it is a simple matter to calculate the total number of dogs and cats in the country using the following formula:
Number of "owned" dogs (or cats) =
Total # occupied HHs **X** % of HHs with dogs(cats) **X** Average # per HH.

For very rough work, one can estimate the number of "owned" dogs or "owned" cats by multiplying the total number of occupied households by 0.6 (dogs) or 0.7 (cats). It is a simple matter to obtain the number

of occupied households in a county, city or state. Simply access the Census Bureau's QuickFacts website at http://quickfacts.census.gov/qfd/index.html and select the state, county or city in which you are interested.

However, as indicated earlier, be aware that both dog and cat ownership rates differ from state to state. The difference between high and low ownership states can be greater than two-fold and, for a specific community, the differences can be even larger. Typically, dense urban areas have much lower rates of dog (and cat?) ownership than the suburbs or rural communities. (See section D below.)

D. Identifying differences in rates of ownership in different regions and types of community.

While a simple formula for calculating the number of dogs and cats in the USA is provided above, more accurate estimates would necessitate taking into account a range of human demographic factors such as housing density, regional differences in pet "ownership," ethnic differences in pet "ownership," differences in household life-stage and other variations. The discussion below provides some guidance on the relevant variances observed.

The AVMA surveys do not simply report national data, they also provide state-by-state data on the percentage of households that have either dogs and cats (although the average number of dogs and cats per owning household is only provided for the nation as a whole).

The table below reports dog and cat numbers from the 2011 AVMA survey listing both high and low ownership states.

	Dogs/100 people	Cats/100 people
USA	**22.59**	**23.9**
DC	**6.80**	**10.2**
MA	**12.90**	**24.2**
MD	**15.70**	**28.8**
MN	**17.47**	**23.6**
ME	**22.59**	**37.5**
LA	**24.37**	**19.2**
OK	**35.00**	**27.5**
AR	**37.34**	**27.6**

These state-by-state data indicate significant variation (DC is a special case and so is excluded from the state by state comparisons) in the percentage of households containing dogs and cats across the country. For example, the AVMA 2001 survey data reported that the Rocky Mountain states had the highest incidence of dog ownership (47-50% of HHs) while the northeast had the lowest (21-28% of HHs). Cat ownership did not show quite such clear regional differences. The more rural states (MT, ND, ME, WY, VT tend to have higher rates of cat ownership (ca. 45%) while LA, MI, MD and IL had the lowest rates at around 26-28%. Overall, the Rocky Mountain region had the highest incidence of pet ownershop (over 60% of HHs) with the Northeast the lowest (Mid-Atlantic – 50% and New England – 54% of HHs).

The data on ownership trends by urban density and ethnicity are much more limited but the few available surveys indicate that dog ownership is lower in dense urban centers than it is in suburban communities or rural communities (who have the highest rates of dog ownership). The American Housing Survey of 2013 surveyed 25 metro areas to determine the pet ownership rates in different areas (as a way of assessing pet populations in case of evacuation in a disaster). (https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=AHS_2013_S06AOM&prodType=table. Web link accessed on November 1, 2017) The results of the survey are presented in the table below.

	Human Population	% HHs with Pets	% Black HHs with pets	% Hispanic HHs with Pets	% Elderly (65+) HHs
Austin, TX	1,716,289	**56.3%**	37.1%	51.1%	42.3%
Baltimore, MD	2,710,489	**45.6%**	26.8%	51.1%	29.7%
Bostoan, MA	4,552,402	**36.2%**	26.0%	30.4%	28.5%
Chicago, IL	9,461,105	**37.9%**	20.5%	40.9%	27.4%
Detroit, MI	4,296,250	**43.7%**	25.1%	53.5%	32.6%
Hartford, CT	1,212,381	**46.1%**	20.1%	36.3%	32.4%
Houston, TX	5,920,416	**47.2%**	30.0%	44.5%	41.0%
Jacksonville, FL	1,345,596	**50.2%**	23.8%	34.9%	39.3%
Las Vegas, NV	1,951,269	**45.2%**	27.4%	45.7%	34.4%
Louisville, KY	1,235,708	**55.1%**	24.9%	40.7%	41.3%
Miami, FL	5,564,635	**39.3%**	18.2%	38.5%	31.2%
Minneapolis Area, MN	3,348,859	**47.8%**	20.4%	34.2%	32.9%
Nashville, TN	1,670,890	**54.6%**	24.9%	36.3%	40.8%
New York, NY	19,567,410	**25.5%**	19.1%	21.9%	20.3%
Northern NJ, NJ	10,380,000	**38.2%**	25.4%	30.0%	27.9%
Oklahoma City, OK	1,252,987	**57.0%**	25.1%	40.4%	47.1%
Orlando, FL	2,134,411	**49.4%**	28.2%	48.5%	37.7%
Philadelphia, PA-NJ	5,965,343	**44.5%**	32.4%	41.7%	31.7%
Richmond, VA	1,208,101	**49.1%**	25.8%	36.7%	37.3%
Rochester, NY	1,079,671	**51.4%**	25.8%	35.9%	36.3%
San Antonio, TX	2,142,508	**55.1%**	24.6%	49.0%	51.0%
Seattle Area, WA	3,439,809	**50.5%**	17.9%	35.4%	38.5%
Tampa Area, FL	2,783,243	**50.2%**	26.8%	50.6%	35.8%
Tucson, AZ	980,263	**59.9%**	40.0%	53.0%	46.0%
Washington, DC Area	5,636,232	**38.4%**	19.8%	36.4%	28.7%
Totals	101,556,267	**42.3%**			

Percentage pet ownership in the twenty-five metro areas varies from 25.5% in New York City to 59.9% in Tucson but ownership rates in black and elderly households are generally lower than the metro average. Cat ownership is lower among African-American and Hispanic communities than in white communities. Asian communities tend to have lower pet ownership rates in general.

Household lifestage is also an important determinant of pet "ownership." Around 70-75% of families with children aged 5-17 have pet dogs or cats while only about 40% of single households have dogs and cats.

We cannot be confident that current dog and cat ownership rates and overall numbers are particularly accurate or relevant to specific communities in the United States. If a shelter wishes to benchmark its activities in a community, it is recommended that it perform its own survey to identify baseline dog and cat populations and their characteristics and distribution in a specific community.

E. Number of animal groups – such as shelters, private and municipal shelters and other groups.

There are a number of data sets that have been used to estimate the total number of shelters (organizations with a building or structure that houses dogs and cats). Most of them do not distinguish between organizations with an actual shelter and organizations without a shelter building. Such a distinction may not be important to the animals being rescued and placed but it is relevant to those of us who need to know how many shelter operations there are, whether they are private or municipal, how large they are, and so on.

Early this century, The HSUS commissioned two Tufts graduates to comb through databases, to use Guidestar, and to make phone calls to determine how many animal organizations there were in the United States. When the list was finished, it contained approximately 9,500 independent entities (plus or minus a few percent). Of these, 3,352 identified themselves as being shelters (i.e. organizations with a building at their official address that housed animals). Of these 3,352, 1,554 identified themselves as being municipal and 1,809 identified themselves as being private 501(c)3 organizations.

The table below indicates the approximate breakdown of shelters by type.

Type of Shelter	**Percentage of Total**
Municipal	46%
HS/SPCA (no contract)	16%
HS/SPCA with housing contract	19%
HS/SPCA with full animal control contract	19%

Several other important points came out of the above survey.

1. There are an average of 1.13 shelters per 100,000 people in the United States. Some states have as many as 5-7 shelters per 100,000 people with the low end being around 0.6 shelters per 100,000 people.
2. Total income recorded for the animal groups identified (the Fiscal Years were usually for 2002 or 2003) came out to $3.48 per capita with 12 national organizations raising another $0.80 per capita.
3. This means that the average animal group (not including the national organizations) exists on an annual budget of around $300,000 per annum.
4. There is approximately one shelter per county on average (there are around 3,100 counties in the US).

A second data set for 2004, compiled by the National Center for Charity Statistics, records all the organizations that are classified under category D20 by the Internal Revenue Service. (D is the animal category and D20 are "animal protection" groups.) The database identified 5,800 D20 organizations of which 3,523 filed Form 990 (meaning they have income of greater than $25,000 per annum). Many of these are not shelters and a quick inspection of the list indicates that about half (or 1,750) are shelters. This is close to the estimate of 1,809 private shelters identified above.

More recent data sets (Guidestar data – mostly for FY 2006) indicate that private animal protection organizations have annual income of around $2 billion a year (or just under $7 per capita). Of this income, the "national" groups (including Best Friends and the ASPCA) raised $357 million. There are 290 "local" groups with budgets of more than $1 million. These raised $960 million while 311 "local" groups with budgets of more than $500,000 raised $225 million. The municipal animal control agencies were estimated to have about $750 million a year to spend and employ (according to Department of Labor statistics) 14,600 people at an average of $38,000 per employee ($554 million for employee costs).

Other data indicates that shelter operations (both municipal and private) are divided approximately as follows as regards size (determined by annual budget).

Annual Budget Range	Percentage of total	Approx. #
$0 to $249,999	45.0%	1,500
$250,000 to $499,999	22.8%	760
$500,000 to $999,999	16.6%	550
$1 million to $2.499 million	8.7%	300
$2.5 million or greater	6.6%	220

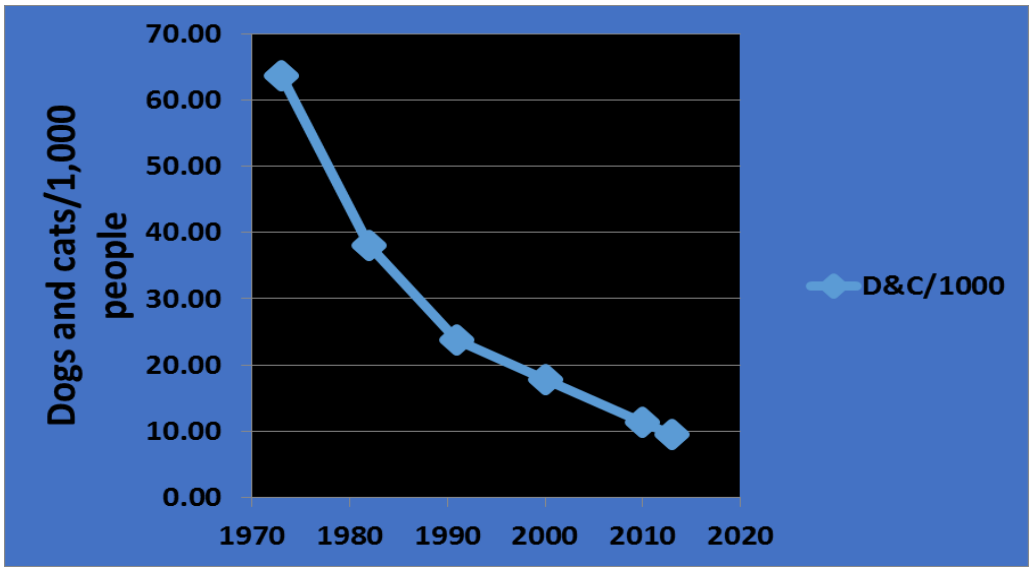
The HSUS does not have data on the number of rescue and fostering operations nor on how many of the above are limited admission facilities. However, it is clear that the number of private animal protection groups is exploding. Looking at the "date of founding" data in the National Center for Charity Statistics database for 2006, one finds the following data for D20 animal protection organizations. Almost three quarters of all the organizations in the data base were founded after 1990.

Year Founded	Number	Number Filing 990	Total Receipts	Total Assets
Pre 1950	109	104	$701,209,907	$1,110,115,829
1950s	113	108	$343,694,282	$456,806,680
1960s	194	188	$190,759,395	$317,162,009
1970s	469	423	$233,989,184	$366,322,793
1980s	596	521	$161,228,338	$222,114,985
1990s	1,803	1,074	$276,531,354	$306,612,315
2000s	2,564	726	$46,660,219	$49,983,844
Unknown	18	17	$7,447,320	$11,126,172
Total	5,866	3,161	$1,961,510,999	$2,840,244,627

The latest examination of Guidestar data indicates that income of the main "national" groups (The HSUS and affiliates, the ASPCA, Best Friends and PETA) is growing much faster than inflation and in 2016 amounted to $720 million (from around $200 million at the beginning of the century). Overall income for private animal protection groups (including "national" groups) has grown from $4.3 per capita in 2002 to $10.7 per capita in 2013 (a 250% increase). Over the same period, the Consumer Price Index increased by 27%.

F. Dogs in Shelters

There are no national estimates of the demographics of dogs entering or leaving shelters in the United States. However, there are sufficient data sources that all point to a substantial reduction in the numbers of dogs (and cats) entering shelters in the United States. The chart below shows what has been happening in US shelters since 1970 according to data that ANR has collected over the years. Merritt Clifton, the only other person who has attempted to track shelter animal numbers over the past 50 years estimates that over 100 dogs and cats per 1,000 people entered shelters in 1970.



It is possible to track shelter dog numbers using the monthly reports provided by Petpoint. This is a shelter software system that is provided at no cost to shelters and rescues in the United States. The data on intakes and outcomes is maintained in a central location on PetPoint servers and they publish a monthly report on intake and outcomes that reports the combined numbers for between 900 to 1,300 shelters and rescues. I have been tracking these numbers and have indexed the numbers to represent 1,000 shelters and rescues (out of approximately 3,350 shelters and around 1,650 rescues in the United States). The data tends to under-represent municipal shelters but it does provide a sense of the trends in animal intake and outcome. Here are the tables since 2010.

	Cal Yr 2010	Cal Yr 2011	Cal Yr 2012	Cal Yr 2013	Cal Yr 2014	Cal Yr 2015
Cats						
Stray intake	443,262	400,819	383,731	371,343	347,446	329,727
Owner surrenders	325,534	311,649	270,522	249,955	229,128	225,564
Transferred in	83,760	83,037	86,235	88,336	89,120	94,486
Seizures by law enforcement	39,069	43,291	52,682	54,686	54,650	51,978
Returned to shelter	23,114	24,920	24,484	24,707	24,695	25,510
Intake Total	914,739	863,847	817,655	789,027	745,040	727,265
Adopted	358,293	366,384	363,580	368,119	380,858	401,970
Euthanasia	444,217	396,629	339,462	293,982	244,913	204,270
Transfer out	44,664	49,569	52,529	59,406	61,640	68,284
RTO	17,425	18,352	17,381	17,668	18,544	18,294
Died in shelter	24,172	22,076	20,990	22,172	21,776	23,273
Cat Outcome Total	888,771	853,112	793,942	761,347	727,732	716,091
Dogs						
Stray intake	346,274	335,688	321,539	305,678	284,360	271,499
Owner surrenders	293,648	292,436	258,789	238,987	220,632	212,731

Transferred in	183,449	184,644	189,593	194,771	193,994	203,325
Seizures by law enforcement	73,651	83,648	86,236	89,052	93,658	89,739
Returned to shelter	44,496	44,674	44,700	45,331	43,525	45,182
Intake Total	943,127	941,101	900,855	873,820	836,169	822,476
Adopted	423,021	430,406	435,707	438,448	438,346	450,342
Euthanasia	288,878	280,084	232,083	200,629	170,043	140,442
Transfer out	87,932	95,728	99,745	106,697	110,598	117,892
RTO	111,385	112,158	107,920	107,337	108,204	109,928
Died in shelter	15,380	14,007	9,358	8,827	8,150	7,101
Dog outcomes	926,597	932,383	884,814	861,938	835,311	825,631

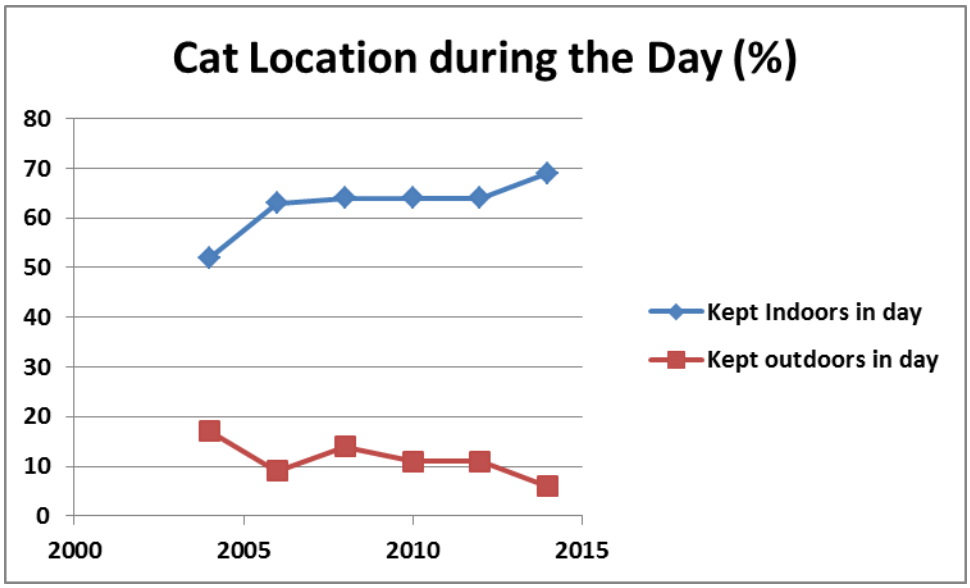
To convert these numbers to annual estimates, multiply by 5. Recently, faculty members at Mississippi State Veterinary College conducted a survey to estimate shelter intake and outcome numbers in the US and they produced estimated totals that are close to those seen above when multiplied by 5.

G. Feral/Stray Cat Numbers.

The estimates of overall feral/stray cat numbers probably show the greatest range of dog and cat demographic numbers. There are estimates in the published literature ranging from less than 10 million to over 70 million. The main two competing numbers are those by Dr Julie Levy of the University of Florida, who estimates in one published paper that the US feral/stray cat population numbers around 50 million, and from Merritt Clifton, who estimates that the feral cat population ranges from around 6.5 million in winter to around 12.5 million in summer. Both protagonists can point to different data sets and data analyses to support their estimates and it is unlikely that the range will be narrowed any time soon without a careful study of stray and feral cat numbers across the nation.

Since 2008, there have been several papers published by conservation biologists that argue that outdoor cats kill an increasing number of birds every year. The number of birds estimated to be killed by cats has increased with each new published paper and most of the papers refer to an increasing number of cats in the environment. Careful attention to the available cat population estimates and to various data sources (e.g. surveys of where pet cats are kept during the day and night, shelter trends, dead cat pick-ups, kittens handled by shelters) fly in the face of claims that the outdoor "footprint" of cats is increasing.

The APPA surveys indicate that more and more pet cats are kept indoors and that the ecological burden of pet cats has declined in the past decade, despite the overall increase in pet cat numbers. For example, the number of pet cats outdoors has declined steadily over the past decade (see below chart from APPA data).



One calculate the outdoor "footprint" of pet cats in cat FTEs (full-time equivalents) by making a few simple assumptions (e.g. that cats allowed access to the outdoors but not kept exclusively outdoors will spend, on average, half their time outdoors during the day and one-third of their time outdoors during the night).

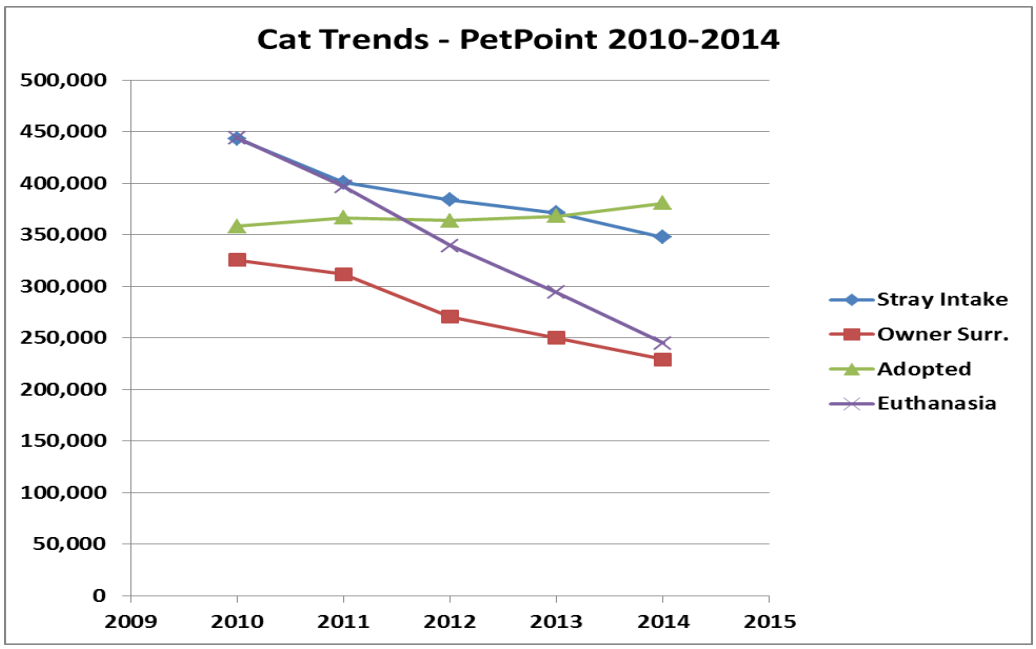
The following table provides calculations of the total number of pet cats in different locations during the day and the night and calculates the outdoor "Full-time Equivalent" for all pet cats – namely, if one estimates the hours spent outdoors and dive by 24, then the final calculation identifies the overall number of cat full-time equivalents outdoors. It is assumed that the daytime and nighttime are both 12 hours long and that the average cat that spends some of its time outdoors will spend half the daytime (i.e. 0.25 of a 24-hour period) outside and one third of the nightime (i.e. 0.167 of a 24-hour day) outside.

	2004	2006	2008	2010	2012	2014
Total Pet Cats (millions)	71.890	73.984	76.079	78.174	80.269	82.364
Number indoors during day	37.38	46.61	48.69	50.03	51.37	56.83
Number indoors during night	42.41	51.79	52.49	54.72	61.00	65.07
Number outdoors during day	12.22	6.66	10.65	8.60	8.83	4.94
Number outdoors during night	11.50	5.92	9.13	7.04	8.03	4.94
Indoors & Outdoors in day	22.286	20.716	16.737	19.544	20.067	20.591
Indoors & Outdoors at night	17.972	16.277	14.455	16.417	11.238	12.355
Outdoor cat FTE (millions)	**32.30**	**20.47**	**26.38**	**23.26**	**23.75**	**17.09**

As is evident, with the increasing percentages of pet cats being kept indoors, the overall pet "cat burden" on wildlife has almost halved in the past ten years.

Estimating the number of stray and feral cats outside is much more of a challenge and there have been very few attempts to undertake such an estimate. Dr Julie Levy attempted such an estimate for Alachua County in Gainesville early in the 21st century and she suggested that the outdoor cat population may be as high as 80% of the pet cat population. However, in Maine, a survey conducted

by Katie Lisnik of The HSUS indicated that the number of outdoor cats may be no more than 10% of the pet cat population. It seems intuitively likely that states with hard winters (and an abundance of mesopredators) will have far fewer outdoor cats than states like Florida. In addition, scientific reports from around the world indicate that cat densities away from human habitation tends to be low (less than 1 cat per square kilometer) unless there is some concentrated food source to support higher cat populations. For example, San Nicolas island off the California coast (where there were no permanent human residents) had almost precisely one cat per square kilometer after over 100 years of cat presence on the island. By contrast, the island fox density (an animal a little smaller than the feral cats) existed at a density of around 4 foxes per square kilometer.



One might attempt to estimate outdoor cat numbers indirectly by tracking shelter intake (adults and kittens) or by tracking the number of dead cats on roads. Neither of these estimates is likely to be particularly persuasive but, in the face of claims that outdoor cat numbers are increasing, it is interesting to note that cat shelter intake has never been lower. Following a huge decline in cat shelter intake in the 1970s, cat shelter intakes levelled off or even increased a bit until around 1995 when they began to decline again and have continued to decline up to the present. The chart above illustrates several parameters of the shelter cat population (drawn from Petpoint reports – see http://www.petpoint.com/reportspage/) normalized to represent 1,000 reporting shelters/rescues. (Note: The Petpoint data under-represents municipal shelters but it provides a reasonably comprehensive snapshot of shelter intake.)

G. Dog/Cat Source Analysis – # of breeders, puppy mills, pet stores

Currently in the United States, the dog population has a turnover of around 12% (that is, 12% of the pet dogs die every year). This means that 8.4 million dogs die annually. However, the dog population is growing by about 1 million dogs per year. Therefore, every year, 9.4 million puppies need to be brought into the dog population to maintain the current population of 72 million and grow it by around 1 million per annum.

Source data for both pet dogs and cats is relatively sparse and relies heavily on surveys that ask owners where they obtained their animals. Such data are known not to be particularly reliable.

The estimates below were derived from three data sources – an HSUS survey of pet ownership in Louisiana and Mississippi in 2007, a study conducted by John New and his colleagues in the 1990s on dog and cat turnover rates in the USA, and the APPMA 2006 survey. By and large, there is broad agreement between the three data sets with one major exception. New and his colleagues found very high numbers of puppies and kittens coming from breeding by pet owners own animals compared to The HSUS and APPMA datasets. For example, New et al reported that 26.5% of puppies and 34.4% of kittens came from reproduction by the owners' own pets whereas the numbers for the other two surveys were 4.5% for puppies and 7.5% for kittens.

SOURCE	DOGS (%)	CATS (%)
Family/Friend/Neighbor/Etc	35.0	28.0
Stray	8.0	28.0
Offspring of own animal	9.0	15.0
Shelter/rescue/adoption	12.0	12.0
Pet store/Newspaper	9.0	3.0
Breeder	17.0	1.5
Internet	0.5	0.0
Other (Gift, Veterinarian, etc)	9.5	12.5

The above data should be used as a guide only. It is likely that reporting bias and other in-built errors in the data collection could produce quite large variances. However, generally it is reported that somewhere between 15+% of animals are adopted from shelters or rescue centers, that a large number of cats "adopt" their owners spontaneously (i.e. they wander in off the street and stay), and that breeders and pet stores are more important sources for dogs than for cats.

H. Sheltering Data

Most of the animal protection organizations (maybe 75% or more) in the United States have, as their main focus, the rescue, housing and disposal (either adoption, return to owner or euthanasia) of companion animals. For these organizations, essential benchmarks have to include the annual number of dogs, cats and other animals handled, the cost of handling these animals, and the relative numbers adopted, returned to owners or euthanized. Given the importance of such outcome data, it is surprising that so few organizations follow or reference the benchmarks that Merritt Clifton and others have been promoting and publicizing the past decade or more.

For example, Clifton reports that the number of animals handled and euthanized in US shelters per unit of human population (one has to have a unifying denominator otherwise there is no way to compare the success of different sizes and types of communities) has been dropping steadily for forty years.

Using a benchmark of number of animals handled and euthanized per 1,000 humans, he reports the following trends **(the 2010 to 2016 data are derived from the Petpoint monthly data reports)**:

Year	Millions of dogs & cats killed	Killed per 1,000 humans
1970	23.4	115.0
1985	17.8	74.8
2000	4.5	16.8
2005	4.4	14.8
2006	3.7	12.5
2010	**3.7**	**11.9**
2011	**3.4**	**10.9**
2012	**2.9**	**9.1**
2013	**2.5**	**7.9**
2014	**2.1**	**6.5**
2015	**1.7**	**5.4**

2016 **1.5** **4.7**

Others are now using the "Per 1,000 humans" numbers to report on how communities (and the animal organizations in those communities) are doing in reducing euthanasia of healthy and adoptable animals (as defined by the Asilomar principles - http://www.hsus.org/pets/pets_related_news_and_events/differences_aside_animal_welfare_groups_come_together/Asilomar-2004-Accords.html)
The euthanasia rate has dropped by 57% since 2011. This is a faster rate of decline than the 30% drop between 2000 and 2010.

Dr Linda Lord at Ohio State Veterinary School surveyed animal care and sheltering facilities across Ohio in 1996 and 2004. She reported the following trends in the "per 1,000 humans" benchmarking statistic for the whole state.

	1996	2004
Dogs Handled	19.14	15.59
Dogs Euthanized	11.50	6.85
Cats Handled	10.27	11.26
Cats Euthanized	7.23	8.04
Total Animals Handled	29.41	26.84
Total Animals Euthanized	18.73	14.89

This type of table makes it very easy to assess progress and to compare oneself with the national average of 12.5 animals euthanized per 1,000 people nationwide.

Clifton also reports significant variations in euthanasia rates from part of the country to another with large variations within the various regions. The lowest euthanasia rates are around 2 to 2.5 dogs and cats per 1,000 people (in the Northeast and in selected West Coast cities). By contrast, places like Fresno (CA), Lincoln County and Louisville (KY), Augusta (GA), Columbia (MO), Amarillo (TX), Gulfport (MS) and Shreveport (LA) all euthanize more than 40 animals per 1,000 people. An analysis of the number of animals handled and euthanized versus the funding available for animal sheltering and animal rescues in the larger Florida counties indicates that the more money spent, the more animals one ends up "saving" ("saved" refers to the number of animals handled/1,000 people minus the number euthanized/1,000 people) – see table below.

This table was constructed to provide county-wide information rather than data from individual organizations (whether animal control or private). The only way to chart progress reliably is to use comprehensive data from all organizations in the community (as pushed by Maddie's Fund). However, the above data should still be interpreted with caution. For example, the "saved" number seems intuitively important but it will obviously be easier to record a higher "save" rate the more animals are handled. Therefore, perhaps the "save" rate should be recorded as a percentage of the total number of animals handled.

Area	Animals Handled/1,000	Animals Euthan./1,000	Animals "Saved"/1,000	$ Spent per capita
Alachua Co.	**41.1**	**14.8**	**26.3**	**$15.0**
Brevard Co.	**34.3**	**17.9**	**16.4**	**$13.5**
Broward Co.	**17.6**	**7.0**	**10.6**	**$7.7**
Collier Co.	**27.4**	**14.4**	**13.0**	**$15.7**
Duval Co.	**32.9**	**19.4**	**13.5**	**$7.7**
Hillsboro Co.	**31.2**	**25.8**	**5.4**	**$9.0**
Lee Co.	**48.2**	**28.4**	**19.8**	**$11.0**
Miami-Dade Co.	**15.8**	**9.5**	**6.3**	**$6.3**
Orange Co.	**27.8**	**14.9**	**12.9**	**$12.6**
Palm Beach Co.	**26.7**	**15.9**	**10.8**	**$15.7**

Pinellas Co.	**25.4**	**13.7**	**11.7**	**$11.5**
Polk Co.	**56.8**	**36.8**	**19.0**	**$11.7**
St Lucie Co.	**40.9**	**22.2**	**18.7**	**$7.1**
Florida (ave)	**26.0**	**15.1**	**10.9**	**$9.5**
USA	**Ca. 19-26**	**Ca. 12.5**	**Ca. 6.5-13.5**	**Ca. $8**

The data used to construct the above table was drawn from county budgets obtained from county websites, from 990 forms obtained through Guidestar, and from items on the World Wide Web. In some cases, accurate euthanasia data could not be obtained for some of the private organizations and so overall county euthanasia numbers are estimated.

It is not clear why there is such a wide variation in the numbers of animals handled by different counties (from 15.8/1,000 to 56.8/1,000). Those counties with low numbers of animals handled could either have fewer animals in the community (urban areas tend to have lower numbers of animals than suburban or rural) or it could be an indication of inadequate animal control activity (if the animals are left on the street, the shelter will not "handle" as many). Alachua County has a particularly high "save" rate and is in the upper range of expenditures. However, the figures do not include the efforts or contributions of the stray cat program supported by the veterinary school. In addition, the per capita expenditure number hides considerable variation in program effort.

Therefore, such a table represents just the beginning of the type of analysis that would be needed to identify the most effective approaches to rescuing and "saving" unwanted animals in the community. We need more detailed analyses from some of the more successful cities and regions to determine how the euthanasia and "save" rates can be pushed even lower and at what cost.

Shelter Financial and Employment Information

According to an analysis of animal control in eighty-two of the hundred largest cities in the United States, the average per capita expenditure on animal control was $3.80 for the 2007/2008 budget year. Large cities (populations of 1 million or more spent, on average, $2.56 per capita while medium cities (populations from 500-999,999) spent $4.39 and smaller cities (under 500,000) spent $4.65.

If only 85% of the population is covered by animal control operations, then an extrapolation from the above numbers would result in an estimate of around $1 billion in total animal control expenditures. This figure is approximately double the amount spent for wages and benefits for the 14,600 animal control employees identified by the Department of Labor (An HSUS survey in 2001 estimated that the shelter workforce is over 30,000 people). From Guidestar data, it would appear that private entities spend a further $1.5 billion. This would mean that annual sheltering and animal rescue expenditures in the USA amount to about $8 per capita.